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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/520,986

07/27/2005

Richard Gilbert

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EXAMINER

GEISEL, KARA E

ART UNIT

PAPER NUMBER

2877

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/520,986	<b>Applicant(s)</b> GILBERT ET AL.	
	<b>Examiner</b> KARA E. GEISEL	<b>Art Unit</b> 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 34-65 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 34-51, 64 and 65 is/are allowed.
- 6) ☒ Claim(s) 52-63 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 January 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments, see the amendment, filed March 10<sup>th</sup>, 2008, pages 8-12, with respect to the rejections of claims 34-51, and 64-65 based on Kreimer et al. (US Pubs 2001/0053521) in view of Kreimer et al. (US Pubs 2003/007319) have been fully considered and are persuasive. The rejection of these claims has been withdrawn.

Applicant's arguments with respect to claims 52-63 have been considered but are moot in view of the new ground(s) of rejection.

In response to applicant's arguments, the recitation "an analyte carrier for use in a detector assembly in which laser radiation from a first source is used to detect the presence of an analyte by Raman scattering, and laser radiation from a second laser radiation source is used to generate a field to enhance the Raman scattering" in claim 52 has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Furthermore, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Since applicant only recites the intended use of the analyte carrier of claim 52, any art which comprises a substrate and a conducting surface on a portion of the substrate for receipt of the analyte can read on this claim.

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As an additional note, the preliminary amendment filed on January 10<sup>th</sup>, 2005, has been entered into this application.

The acceptance of the drawings in the previous Office Action (paper number 20070829) has been withdrawn, and a new objection is set forth below.

### ***Drawings***

The drawings are objected to because the shading of figs. 2-4 is too dark, making the structure of the drawings hard to see. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 52-55 are rejected under 35 U.S.C. 102(b) as being anticipated by Natan (USPN 6,025,202).

In regards to claim 52, Natan discloses an analyte carrier (figs. 1B and 1D) for use in a detector assembly in which laser radiation from a first source is used to detect the presence of an analyte by Raman scattering, and laser radiation from a second laser radiation source is used to generate a field to

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enhance the Raman scattering (as is discussed above, since this limitation is within the preamble, and also merely a use limitation, it is not afforded patentable weight), comprising: a substrate for supporting the analyte and having optical properties chosen to match the laser radiation from the first or second radiation sources (substrate); and a conducting surface on a portion of the substrate for receipt of the analyte (spheres on 1D and column 3, lines 1-20).

In regards to claim 53, the conducting surface comprises a colloidal metal film (column 5, lines 1-15; layer is a colloid Au layer).

In regards to claim 54, the metal film is one of aluminum, copper, silver or gold (Au).

In regards to claim 55, the conducting surface has a thickness on the order of 10-100nm (column 22, lines 41-44).

Claims 52, 56-57, and 63 are rejected under 35 U.S.C. 102(b) as being anticipated by Kreimer et al. (US Pubs 2003/0073139).

In regards to claim 52, Kreimer discloses an analyte carrier (fig. 3) for use in a detector assembly in which laser radiation from a first source is used to detect the presence of an analyte by Raman scattering, and laser radiation from a second laser radiation source is used to generate a field to enhance the Raman scattering (as is discussed above, since this limitation is within the preamble, and also merely a use limitation, it is not afforded patentable weight), comprising: a substrate for supporting the analyte and having optical properties chosen to match the laser radiation from the first or second radiation sources (3008); and a conducting surface on a portion of the substrate for receipt of the analyte (3004).

In regards to claim 56, the conducting surface has deposited thereon a reporter dye (3012) having a binding molecule (3016) for selectively binding to an analyte molecule to be analyzed (3020).

In regards to claim 57, the reporter dye is arranged so that, in use, the reporter dye is in the analysis region on binding with a molecule to be analyzed (§ 20).

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In regards to claim 63, the carrier comprises a prism arrangement (3008), the conducting surface being arranged on one face of the prism (as can be seen in fig. 3).

Claims 52, 58-60 and 63 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohman (USPN 5,443,890).

In regards to claim 52, Ohman discloses an analyte carrier (fig. 2) for use in a detector assembly in which laser radiation from a first source is used to detect the presence of an analyte by Raman scattering, and laser radiation from a second laser radiation source is used to generate a field to enhance the Raman scattering (as is discussed above, since this limitation is within the preamble, and also merely a use limitation, it is not afforded patentable weight), comprising: a substrate for supporting the analyte and having optical properties chosen to match the laser radiation from the first or second radiation sources (1 and 7); and a conducting surface on a portion of the substrate for receipt of the analyte (column 9, lines 9-29).

In regards to claim 58, the analyte carrier comprises a microfluidic chip (column 9, lines 10-12).

In regards to claim 59, the microfluidic chip includes at least one channel (2), a portion of the channel having the conducting surface thereon (column 9, lines 9-29).

In regards to claim 60, the microfluidic chip includes multiple channels (2), each channel having a portion with a conducting surface thereon (column 9, lines 9-29), each conducting surface having a different reporter dye deposited thereon (it would be up to the user what is used in the device, which could include having different reporter dyes in each channel).

In regards to claim 63, the carrier comprises a prism arrangement, the conducting surface being arranged on one face of the prism (column 9, lines 9-29).

Claims 52, 58, and 61-63 are rejected under 35 U.S.C. 102(e) as being anticipated by Dickopf et al. (US Pubs 2001/0026493).

In regards to claim 52, Dickopf discloses an analyte carrier (figs. 2 and 6) for use in a detector assembly in which laser radiation from a first source is used to detect the presence of an analyte by Raman scattering, and laser radiation from a second laser radiation source is used to generate a field to enhance the Raman scattering (as is discussed above, since this limitation is within the preamble, and also merely a use limitation, it is not afforded patentable weight), comprising: a substrate for supporting the analyte and having optical properties chosen to match the laser radiation from the first or second radiation sources (10); and a conducting surface on a portion of the substrate for receipt of the analyte (125 and ¶ 60).

In regards to claim 58, the analyte carrier comprises a microfluidic chip (fig. 6c).

In regards to claim 61, the carrier comprises a microtiter plate (fig. 6).

In regards to claim 62, the microtiter plate has one or more wells (defined by 119), each well having the conducting surface at a bottom portion thereof (125).

In regards to claim 63, the carrier comprises a prism arrangement (fig. 2, 20), the conducting surface being arranged on one face of the prism (120).

#### *Allowable Subject Matter*

Claims 34-51 and 64-65 are allowed over the prior art of record.

The following is a statement of reasons for the indication of allowable subject matter:

As to claim 34, the prior art of record, taken alone or in combination, fails to disclose or render obvious a detector assembly for detecting the presence of a molecule in an analyte comprising: a second laser radiation source arranged to provide radiation, in use, to the conducting surface **at an angle to the conducting surface such that a field is generated in the analysis region**; wherein the first and second laser radiation sources and the conducting surface and wavelength of the second radiation source are arranged such that **the field generated by the second laser source matches a molecular vibrational**

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**energy and thereby causes an enhanced Raman scattering effect** of radiation of the first laser source, in combination with the rest of the limitations of claim 34.

As to claim 64, the prior art of record, taken alone or in combination, fails to disclose or render obvious a detector for detecting the presence of a molecule in an analyte on an analyte carrier having a conducting surface for receipt of an analyte in an analysis region of the surface, comprising: a second laser radiation source arranged to provide radiation, in use, to the conducting surface **at an angle to the conducting surface such that a field is generated in the analysis region**; wherein the first and second laser radiation sources and the conducting surface and wavelength of the second radiation source are arranged such that **the field generated by the second laser source matches a molecular vibrational energy and thereby causes an enhanced Raman scattering effect** of radiation of the first laser source, in combination with the rest of the limitations of claim 64.

As to claim 65, the prior art of record, taken alone or in combination, fails to disclose or render obvious a method of detecting the presence of a molecule in an analyte, comprising: simultaneously illuminating the conducting surface with second laser radiation **at an angle to the conducting surface and wavelength such that the field generated by the second laser source matches a molecular vibrational energy state** to generate a field in the analysis region; and wherein the field generated in the analysis region enhances the Raman scattering effect, in combination with the rest of the limitations of claim 65.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kara E Geisel whose telephone number is **571 272 2416**. The examiner can normally be reached on Monday through Friday, 8am to 4pm.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on **571 272 2800 ext. 77**. The fax phone number for the organization where this application or proceeding is assigned is **571 273 8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**/Kara E Geisel/  
Primary Examiner,  
Art Unit 2877**

August 1, 2008